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BIOLOGICAL SURVEY OF THE UPPER POTOMAC RIVER AND SELECTED TRIBUTARIES, 1966-1968

FEDERAL WATER POLLUTION CONTROL ADMINISTRATION
CHARLOTTESVILLE, VIRGINIA

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BIOLOGICAL SURVEY

OF

THE UPPER POTOMAC RIVER

AND SELECTED TRIBUTARIES

1966-1968

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DATA REPORT NO. 4

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I. PURPOSE

The purpose of this report is to disseminate data resulting from several biological studies conducted in the Potomac River Basin upstream from Great Falls, Maryland. Studies on the North Branch of the Potomac River and tributaries were specifically designed to supplement the "Interim Report-Mine Drainage Pollution of North Branch of the Potomac River 1966-1968" and the report on "Water Quality in the North Branch of the Potomac River between Cumberland and Luke, Maryland." Findings of these studies plus other sampling efforts provide an insight into the biological response of the aquatic environment to acid mine drainage and organic pollution in selected stream reaches.

II. SCOPE

During the period 1966-68, a stream sampling program was conducted to determine biological conditions in the Potomac River Basin upstream from Washington, D. C. The study area consists of three distinct sub-basins of the Potomac River: the entire North and South Branch drainages plus the main stem of the Potomac River from Paw Paw, West Virginia, to Great Falls, Maryland.

For purposes of this report, the community of bottom macro-organisms was selected as the indicator of the biological conditions in the stream since they serve as the preferred food source for higher aquatic forms and exhibit similar reactions to adverse stream conditions. Macro bottom organisms are animals that live in direct association with the stream bottom, and are visable with the unaided eye. They are distinquished from micro organisms by the fact that they are re-

tained in a No. 30 mesh sieve. The combination of limited locomotion and life cycles of one year or more for most benthic species provide a long-term indicator of stream water quality.

Classification of organisms in this report is considered in three categories: pollution sensitive, intermediate and pollution tolerant. In unpolluted streams,a wide variety of sensitive clean-water associated bottom organisms are normally found. Typical groups are stoneflies, mayflies, and caddisflies. These sensitive organisms usually are not individually abundant because of natural predation and competition for food and space; however, the total count or number of organisms at a given station may be high because of the different varieties present. Sensitive genera (kinds) tend to be eliminated by adverse environmental conditions (e.g., chemical and/or physical) resulting from wastes discharging into the stream.

In waters enriched by organic wastes comparatively fewer kinds of animals are found though great numbers of certain genera may be present. Organic pollution-tolerant forms such as sludgeworms, rattailed maggots, certain species of bloodworms (red midges), certain leeches, and some species of air-breathing snails may multiply and become abundant because of a favorable habitat and food supply. These organic pollution-tolerant bottom organisms may also exist in the natural environment but are generally found in small numbers. The abundance of these forms in streams heavily polluted with organics is due to their physiological and morphological abilities to survive environmental conditions more adverse than conditions tolerated by other

organisms. Under conditions where inert silts or organic sludges blanket the stream bottom, the natural home of bottom organisms is destroyed, which also causes a reduction in the number of kinds of organisms present.

Streams grossly polluted with toxic wastes such as mine drainage will support little, if any, aquatic life and will reduce the population of both sensitive and pollution-tolerant organisms.

In addition to sensitive and pollution-tolerant forms, some bottom organisms are termed intermediates, in that they are capable of living in moderately polluted areas as well as in clean-water situations. These organisms occurring in limited numbers, therefore, cannot serve as effective indicators of water quality.

III. PROCEDURES

In general, sampling stations were selected to correspond with chemical and bacteriological stations used in previous studies. In the absence of such stations, location of sampling points was based on known waste outfalls, accessability, and stream bottom characteristics. Each station was sampled once and the kinds of macro bottom organisms were tentatively identified. If possible, a qualitative and quantitative sample was taken. At some stations this was not feasible due to poor sampling conditions, e.g., excessive depth, bedrock substrate, paucity of bottom organisms, and in these cases only a qualitative sample was taken.

Quantitative bottom samples were taken using a Surber Square Foot Sampler, an Ekman Dredge (0.5 sq. ft.) or a Petersen Dredge (0.6 sq. ft.). Samples were screened on a No. 30 U. S. Standard Series sieve and the animals retained were preserved in 10 percent formalin solutions.

Results of quantitative samples were expressed as numbers of organisms per square foot of river bottom and qualitative sampling in numbers of kinds of organisms per sample.

IV. SURVEY RESULTS

TABLE I

BOTTOM ORGANISM DATA OF THE NORTH BRANCH OF THE POTOMAC RIVER & UPPER POTOMAC RIVER AND SOME OF THEIR KEY TRIBUTARIES

Sta. No.	Location	Bottom Organisms: No.of Kinds	Bottom Organisms: No.Per Sq.Ft.	Dominant Forms	Indicated Water Quality
1	North Branch of Potomac River immediately upstream from Kempton, Maryland	1	Not taken	Smoky Alderfly Larvae	Mine drainage
2	Elk Run (tributary to North Branch of Potomac River) at Henry Siding, W.Va. off W.Va. Route 90	0	Not taken	Bottom organisms could not be found	Mine drainage
3	Laurel Run (tributary to North Branch of Potomac River)at the Dobbin Road Bridge	2	Not taken	Smoky Alderfly Larvae and Bloodworms	Mine drainage
4	Buffalo Creek (tributary to North Branch of Potomac River) at W.Va. Route 90 Bridge, Bayard, W.Va.	1	Not taken	Air breathing snails	Mine drainage & domestic organic pollution
5	North Branch of Potomac River at Steyer, Maryland	1	Not taken	Bloodworms	Mine drainage
6	Abram Creek (tributary to North Branch Potomac River) was sampled at bridge on W.Va.Route 42, 3 1/2 miles southeast of Mt.Storm, W.Va.	2	Not taken	Bloodworms & Smoky Alderfly Larvae	Mine drainage
7	Abram Creek at the wooden bridge on county road south of U.S. Route 50 & northwest of Mt.Pisgah, W.Va.	1	Not taken	Smoky Alderfly Larvae	Mine drainage
8	Glade Run (tributary to Abram Creek) was sampled on Mt.Pisgah Rd.approx. 0.75 mi.south of U.S.Route 50	2	Not taken	Smoky Alderfly Larvae & blood-worms	Mine drainage

TABLE I (Continued)

Sta. No.	Location	Bottom Organisms No.of Kinds	Bottom Organisms No.Per Sq.Ft.	Dominant Forms	Indicated Water Quality
9	Abram Creek 0.5 mile west of Emoryville,W.Va.	1	Not taken	Smoky Alderfly Larvae	Mine drainage
10	Emory Creek (tributary to Abram Creek) 1 1/2 miles north of Hartmansville, W.Va. on Sulfur City Road	2	Not taken	Bloodworms & a midge larvae	Mine drainage
11	Abram Creek at bridge on Nethkin Church-Emoryville Rd. approx. 2 1/2 mi.southwest of Elk Garden, W.Va.	0	Not taken	None	Mine drainage
12	Wolfden Run (tributary to North Branch Potomac River) at Kitzmiller, Md. at North Hill Rd.Bridge	1	Not taken	Crayfish (1)	Mine drainage
13	North Branch of Potomac River at USGS Gage Station downstream from Kitzmiller, Md.	0	Not taken	None	Mine drainage
14	Three Forks Run (tributary to North Branch Potomac River) sampled at East Vindex,Md.	0	Not taken	None	Mine drainage
15	Deep Run (tributary to North Branch Potomac) was sampled on county road 1/3 mi.south of Nethkin, W.Va. & approx. 1 mi. west of Elk Garden, W.Va.	3	Not taken	Caddisflies, crayfish	Light mine drainage
16	Cranberry Run (tributary to Deep Run) was sampled at culvert on county road at Nethkin, W.Va. approx. 1 1/2 mi.east of Elk Garden, W.Va.	5	Not taken	Bloodworms & mosquito larvae	Mild organic pollution

TABLE I (Continued)

Sta. No.	Locations	Bottom Organisms: No. of Kinds	Bottom Organisms: No. per Sq. Ft.	Dominant Forms	Indicated Water Quality
17	Deep Run at Shaw, W.Va. at bridge on town road immediately off W.Va. Route 46	2	Not taken	Caddisflies & crayfish	Fair
18	Howell Run (tributary to North Branch of Potomac River) was sampled at W.Va. Route 46 in Shaw, W.Va.	4	Not taken	Bloodworms	Mild organic pollution
19	Piney Swamp Run (tributary to North Branch Potomac) was sampled at culvert on W.Va. Route 46 approx. 5 mi. southwest of Piedmont, W.Va. & 1/2 mi. east of Cross Church, W.Va.	3	Not taken	Smoky Alderfly Larvae & bloodworms	Mine drainage
20	Piney Swamp Run approx. 1 1/4 mi. west of Beryl, W.Va.	1	Not taken	Bloodworms	Mine drainage
21	North Branch Potomac River at Beryl, W.Va. upstream from Savage River	0	Not taken	None	Mine drainage
22	Savage River (tributary to North Branch Potomac) was sampled at Savage Forest Rd. Bridge immediately upstream from Aaron Run near Bloomington, Md.	14	190	Mayflies, intermediate midge larvae, & caddisflies	Excellent
23	Aaron Run (tributary to Savage River) was sampled approx. 20 yds. upstream from mouth at Savage R. Forest Rd. near Bloomington, Md.	0	Not taken	None	Mine drainage
24	Savage River immediately upstream to its mouth at Maryland Route 135 Bridge at Bloomington, Md.	6	46	Caddisflies & intermediate midge larvae	Good

TABLE I (Continued)

Sta. No.	Location	Bottom Organisms: No. of Kinds	Bottom Organisms: No. Per Sq. Ft.	Dominant Forms	Indicated Water Quality
25	North Branch of Potomac River off Md. Route 135 between W.Va. Pulp & Paper Co. at Luke and Savage River	0	Not taken	None	Mine drainage
26	North Branch Potomac River at Piedmont, W.Va. immediately downstream from W.Va. Pulp & Paper Mill at Luke, Md.	0	Not taken	None	Industrial pollution & thermal pollution
27	Georges Creek (tributary to North Branch Potomac River) was sampled at Shaft Rd. Bridge downstream from Frostsburg, Md.	8	275	Sludgeworms, rat-tail maggots	Heavy organic pollution
28	Moore's Run (tributary to Georges Creek) was sampled at Dogwood Flats, Md.	2	Not taken	Smoky Alderfly larvae & bloodworms	Mine drainage & organic pollution
29	Mill Run (tributary to Georges Creek) was sampled at Morrison, Md.	2	Not taken	Smoky Alderfly larvae & bloodworms	Mine drainage & organic pollution
30	Georges Creek at Franklin, Md. off Md. Route 36	2	Not taken	Smoky Alderfly larvae & bloodworms	Mine drainage with some organic pollution
31	Georges Creek approx. 100 yds. upstream from Md. Route 135 Bridge at Westernport, Md.	2	336	Bloodworms & an intermediate midge larvae	Organic pollution & mine drainage
32	North Branch Potomac at Poland, Md.	1	Not taken	Sludgeworms	Organic pollution
33	North Branch Potomac River at Keyser, W.Va. approx. 100 yds. downstream from U.S.Rt.220 Bridge	5	120	Sludgeworms & intermediate midge larvae	Organic pollution

TABLE I (Continued)

Sta. No.	Location	Bottom Organisms No.of Kinds	Bottom Organisms No.Per Sq.Ft.	Dominant Forms	Indicated Water Quality
34	North Branch Potomac River at Black Oak Rd. upstream from Rawlings, Md.	9	298	Intermediate midge larvae	Organic pollution
35	North Branch of Potomac River at Pinto Bridge upstream from Cumberland, Md.	2	Not taken	Air breathing snails & intermediate midge larvae	Organic pollution
36	North Branch Potomac River at Cumberland Fair Grounds near Potomac Park, Md.	1	Not taken	Air breathing snail	Organic pollution
37	North Branch of Potomac River at W.Va. Route 28 Bridge (Ridgely Bridge) opposite Cumberland, Md.	4	Not taken	Air breathing snails, sludgeworms,& intermediate midge larvae	Moderately heavy organic pollution
38	Wills Creek (tributary to North Branch Potomac River) was sampled at Ellerslie, Md. just south of Pa. state line	17	142	Caddisflies & mayflies	Excellent
39	Jennings Run (tributary to Wills Creek) at east edge of Barrelville off Md. Route 36	1	Not taken	Midge larvae	Mine drainage
40	Jennings Run at Corriganville, Md. off Md.Route 36	4	Not taken	Caddisflies and mayflies	Fair
41	Hoffman Tunnel Discharge at Clarysville, Md. off Md.Route 55 (tributary to Braddock Runs)	0	Not taken	None	Mine drainage
42	Braddock Run (tributary to Wills Creek) was sampled at Narrows Park, Md. immediately upstream from confluence with Wills Creek	0	Not taken	None	Poor due to mine drainage & organic pollution

TABLE I (Continued)

Sta. No.	Locations	Bottom Organisms: No. of Kinds	Bottom Organisms: No. Per Sq. Ft.	Dominant Forms	Indicated Water Quality
43	Wills Creek at USGS Gage Station at downstream edge of Eckhart Junction, Md.	2	Not taken	Bloodworms & intermediate midges	Poor
44	Wills Creek off Mechanic St. & Henderson Blvd., Cumberland, Maryland	5	Not taken	Bloodworms	Poor
45	North Branch Potomac River at Wiley Ford Bridge at south edge of Cumberland, Md.	6	Not taken	Leeches & air breathing snails	Moderately heavy organic pollution
46	Evitts Creek (tributary to North Branch Potomac River) was sampled at Md. Route 51 Bridge at southeast edge of Cumberland, Md.	14	42	Mayflies, damselflies, scuds, & air breathing snails	Fair
47	North Branch Potomac River approx. 100 yards downstream from Western Md. RR Bridge adjacent to Cumberland Municipal Airport in W.Va.	2	Not taken	Sludgeworms & intermediate midge larvae	Moderately heavy organic pollution
48	North Branch Potomac River approx. 100 yds. upstream from B&O RR Bridge & downstream from Pittsburgh Plate & Glass Co. at North Branch, Md.	13	26	Sludgeworms and leeches	Mild organic pollution
49	Patterson Creek (tributary to North Branch Potomac) was sampled approx. 100 yds. upstream from W.Va. Route 28 at Fort Ashby, W.Va.	5	Not taken	Mayflies	Good
50	North Branch Potomac River opposite Spring Gap, Maryland	10	Not taken	Sow-bugs & intermediate midge larvae	Mild organic pollution

TABLE I (Continued)

Sta. No.	Locations	Bottom Organisms: No.of Kinds	Bottom Organisms: No.Per Sq.Ft.	Dominant Forms	Indicated Water Quality
51	North Branch of Potomac River at Oldtown, Md. Bridge	15	137	Caddisflies and Mayflies	Close to recovery
52	South Branch of Potomac River at U.S. Route 220 Bridge south of Petersburg, W.Va. (joins North Branch Potomac to form Potomac River)	3	Not taken	Water pennies & Mayflies	Good
53	Lunice Creek (tributary to South Branch Potomac River) was sampled below Petersburg, W.Va. Sewage Treatment Plant	1	Not taken	Sludgeworms	Organic pollution
54	South Branch of Potomac approx. 1/2 mi. downstream from Lunice Creek & approx. 1 mi. downstream from Petersburg, W.Va. STP	3	Not taken	Caddisflies & air breathing snails	Good
55	South Fork of South Branch of Potomac River at U.S.Route 220 Bridge south of Moorefield,W.Va.	8	Not taken	Mayflies and caddisflies	Good
56	South Fork of South Branch of Potomac River at Moorefield,W.Va. Sewage Treatment Plant	1	Not taken	Sludgeworms	Organic pollution
57	South Branch of Potomac River at U.S. Route 220 Bridge approx. 2.5 mi. downstream from Moorefield, W.Va. Sewage Treatment Plant	4	Not taken	Mayflies and an air breathing snail	Good, recovered
58	South Branch of Potomac immediately downstream from unnamed tributary from Romney, W.Va. STP	2	Not taken	Air breathing snails and mayflies	Good

TABLE I (Continued)

Sta. No.	Locations	Bottom Organisms No.of Kinds	Bottom Organisms No.per Sq.Ft.	Dominant Forms	Indicated Water Quality
59	South Branch of Potomac River at French Station, W.Va. approx. 1/4 mi. upstream from the mouth	25	72	Caddisflies and Mayflies	Excellent
60	Potomac River at W.Va. Route 29 Bridge at Paw Paw, W.Va.	25	275	Caddisflies, mayflies, & gill breathing snails	Excellent
61	Cacapon River, tributary to Potomac River, was sampled at W.Va. Route 9 Bridge at east edge of Great Cacapon,W.Va.	12	Not taken	Mayflies & caddisflies	Good
62	Potomac River at Hagerstown, Md. Water Treatment Plant upstream from Williamsport,Md.	6	Not taken	Mayflies and gill breathing snails	Good
63	Conococheague Creek, tributary to Potomac River, was sampled at Md.Route 68 Bridge at Williamsport, Md.	9	Not taken	Mayflies, damselflies, and caddisflies	Fair
64	Opequon Creek, tributary to Potomac River, was sampled at W.Va. Route 45 Bridge east of Martinsburg, W.Va.	18	Not taken	Waterpennies, damselflies, blackflies	Good
65	Potomac River opposite Sheperdstown, W.Va. & Md.Route 34 Bridge	10	Not taken	Mayflies, waterpennies, riffle beetles & gill breathing snails	Good
66	Antietam Creek, tributary to Potomac River, was sampled at bridge at Village of Antietam,Md.	22	713	Midge larvae, caddisflies, mayflies	Excellent

TABLE I (Continued)

Sta. No.	Locations	Bottom Organisms No.of Kinds	Bottom Organisms No.per Sq.Ft.	Dominant Forms	Indicated Water Quality
67	Potomac River at Harpers Ferry, W.Va. approx.100 yds. downstream from power plant	10	Not taken	Scuds, mayflies, & caddisflies	Good
68	Shenandoah River (tributary to Potomac River) at Harpers Ferry, W.Va. approx. 100 yds. upstream from National Park Bldg.	25	Not taken	Scuds, caddisflies, & mayflies	Good
69	Unnamed tributary to Potomac River which flows through Brunswick, Md. & enters Potomac approx. 1/4 mi. downstream from Va.Route 287 Bridge	0	Not taken	None	Mild pollution
70	Potomac River approx. 1/2 mi. downstream from Va.Route 287 Bridge opposite Brunswick,Md. STP	---	Not taken	----------	Mild pollution
71	Catoctin Creek, tributary to Potomac River, was sampled east of Brunswick, Md. at Md. 464 Bridge	2	Not taken	Waterpennies & caddisflies	Fair
72	Potomac River at U.S. Route 15 Bridge at Point of Rocks,Md.	6	Not taken	Scuds, mayflies, & gill breathing snails	Fair
73	Monocacy River, tributary to Potomac River, was sampled at Md. Route 28 Bridge near Furnace Ford, Maryland	20	605	Riffle beetles, mayflies, midge larvae, caddisflies	Excellent
74	Potomac River at White's Ferry,Md.	1	Not taken	Midge larvae	Poor
75	Potomac River at Edwards Ferry,Md.	3	Not taken	Scud, stonefly & damselfly	Fair

TABLE I (Continued)

Sta. No.	Locations	Bottom Organisms: No.of Kinds	Bottom Organisms: No.per Sq.Ft.	Dominant Forms	Indicated Water Quality
76	Tuscarora Creek, tributary to Goose Creek (tributary to Potomac River), was sampled at U.S. Route 15 Bridge upstream from Leesburg, Va.	17	132	Midge larvae, caddisflies, flatworms,& mayflies	Good
77	Tuscarora Creek downstream from Leesburg, Va. STP at Douglas School Rd.Bridge (Godfrey Field Road)	4	3,681	Sludgeworms and bloodworms	Gross organic pollution
78	Tuscarora Creek at upstream edge of Goose Creek Country Club golf course	6	28	Sludgeworms	Mild organic pollution
79	Goose Creek, tributary to Potomac River,was sampled at Va.Route 7 Bridge	20	102	Caddisflies, mayflies, blackflies, & flatworms	Excellent
80	Goose Creek, tributary to Potomac River in Va.,was sampled 1 1/2 mi.upstream from its mouth	10	Not taken	Mayflies, caddisflies,& blackflies	Good
81	Broad Run, tributary to Potomac River, was sampled at Va.Route 7 Bridge near Ashburn Junction	15	726	Caddisflies, blackflies,& riffle beetles	Good
82	Potomac River at Seneca, Md. off Chesapeake & Ohio Canal	3	Not taken	Scuds	Fair
83	Potomac River immediately upstream from east fork of Sugarland Run in Virginia	6	Not taken	Scuds	Fair

TABLE I (Continued)

Sta. No.	Locations	Bottom Organisms No.of Kinds	Bottom Organisms No.Per Sq.Ft.	Dominant Forms	Indicated Water Quality
84	Right Fork of Folly Lick Branch tributary to Sugarland Run which is a tributary to Potomac River, was sampled at Herndon, Virginia	7	Not taken	Mosquito and midge larvae	Poor
85	Left Fork of Folly Lick Branch approx. 100 yds. upstream from the right fork	11	Not taken	Mayflies and caddisflies	Fair
86	Folly Lick Branch approx. 100 yds. upstream from Herndon, Va. STP	6	63	Sludgeworms	Mild pollution
87	Folly Lick Branch at Herndon, Va. STP	3	Not taken	Blackfly larvae	Moderate organic pollution
88	Folly Lick Branch at Bridge on Va. Route 28 north of Herndon,Va.	4	52	Sludgeworms, midges & air breathing snails	Moderate organic pollution
89	Sugarland Run immediately east of Va. Route 228 Bridge, north of Herndon, Va. & downstream from Folly Lick Branch	10	1,734	Sludgeworms	Organic pollution
90	Sugarland Run at Va. Route 7 Bridge	11	27	Sludgeworms, leeches, sow-bugs, blackflies, & air breathing snails	Mild organic pollution
91	Sugarland Run approx. 100 yds. upstream from Potomac R. at culvert	5	Not taken	Sow-bugs & scuds	Mild organic pollution
92	Potomac River opposite Lock #5 on C&O Canal approx. 1 mi.upstream from Chain Bridge, Washington, D.C.	7	Not taken	Scuds and stoneflies	Advanced stage of biological recovery

TABLE II

TABULATION OF
BOTTOM ORGANISMS OF THE UPPER AND MIDDLE REACHES OF THE POTOMAC RIVER AND KEY TRIBUTARIES

Station No. Location & Description	Marco-Invertebrates Present	Present Only In Qualitative Sample	No. Of Each Organism in Sq.Ft.Sample	Percent Of Quantitative Sample
1. North Branch of Potomac River immediately upstream from Kempton, Md.	Arthropoda Insecta Megaloptera *Sialis* sp.	X	Not taken	
2. Elk Run, tributary to North Branch Potomac River, was sampled at Henry Siding, W.Va. off W.Va. Route 90	0	--	Not taken	
3. Laurel Run, tributary to North Branch Potomac River, was sampled at Dobbin Road Bridge	Arthropoda Insecta Megaloptera *Sialis* sp. Diptera Chironomidae *Chironomus* sp.	X X	Not taken	
4. Buffalo Creek, tributary to North Branch Potomac River, was sampled at W.Va. Route 90 Bridge in Bayard, W.Va.	Mollusca Gastropoda Pulmonata *Ferrissia* sp.	X	Not taken	
5. North Branch Potomac River at Steyer, Maryland	Arthropoda Insecta Diptera Chironomidae *Chironomus* sp.	X	Not taken	

TABLE II (Continued)

Station No. Location & Description	Macro-Invertegrates Present	Present Only In Qualitative Sample	No. Of Each Organism in Sq.Ft.Sample	Percent Of Quantitative Sample
6. Abram Creek, tributary to North Branch Potomac River, was sampled at bridge on W.Va.Route 42, 3½ miles southeast of Mt.Storm, W.Va.	Arthropoda Insecta Megaloptera *Sialis* sp. Diptera Chironomidae *Chironomus* sp.	 X X	Not taken	
7. Abram Creek at Wooden Bridge on county road so. of U.S. Rt.50 & NW of Mt. Pisgah,W.Va.	Arthropoda Insecta Megaloptera *Sialis* sp.	 X	Not taken	
8. Glade Run, tributary to Abram Creek at Mt. Pisgah, W.Va. Rd. approx. 3/4 mi.so.of U.S. Rt.50	Arthropoda Insecta Megaloptera *Sialis* sp. Diptera Chironomidae *Chironomus* sp.	 X X	Not taken	
9. Abram Creek ½ mi.west of Emoryville, W.Va. upstream from Emory Creek	Arthropoda Insecta Megaloptera *Sialis* sp.	 X	Not taken	
10. Emory Creek, tributary to Abram Creek, 1½ mi.north of Hartmanville, W.Va. on Sulfur City Road	Arthropoda Insecta Diptera Chironomidae *Chironomus* sp. *Corydoneura* sp.	 X X	Not taken	
11. Abram Creek approx.2½ mi.SW of Elk Garden, W.Va. at bridge on Nethkin Church-Emoryville Rd.	0	---	Not taken	

TABLE II (Continued)

Station No. Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. Of Each Organism in Sq. Ft.Sample	Percent of Quantitative Sample
12. Wolfden Run, tributary to North Branch Potomac River, was sampled at Kitzmiller, Md. at North Hill Rd.Bridge	Arthropoda Crustacea Malacostraca Decapoda *Cambarus* sp.	 X	 Not taken	
13. North Branch Potomac River at U.S G.S. Gage Station downstream from Kitzmiller,Md.	0	---	Not taken	
14. Three Forks Run, tributary to North Branch Potomac, was sampled at East Vindex, Md.	0	---	Not taken	
15. Deep Run, tributary to North Branch Potomac, was sampled on County Rd. 1/3 mi.so.of Nethkin,W.Va. & approx. 1 mi. west of Elk Garden, W.Va.	Arthropoda Crustacea Malacostraca Decapoda *Cambarus* sp. Insecta Trichoptera *Cheumatopsyche* sp. *Limnephilus* sp.	 X X X	 Not taken	
16. Cranberry Run, tributary to Deep Run, at culvert on county road at Nethkin,W.Va. approx. 1½ mi. east of Elk Garden,West Virginia	Arthropoda Crustacea Malacostraca Isopoda *Asellus* sp. Insecta Diptera Tipulidae *Tipula* sp. Culicidae *Culex* sp. Chironomidae *Chironomus* sp. *Cryptochironomus* sp.	 X X X X X	 Not taken	

TABLE II (Continued)

Station No.	Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. Of Each Organism in Sq.Ft. Sample	Percent of Quantitative Sample
17.	Deep Run at Shaw, W.Va. at bridge on town road immediately off W.Va.Rt.46 about ½ mile above the mouth	Arthropoda			
		Crustacea			
		Malacostraca			
		Decapoda			
		Cambarus sp.	X	Not taken	
		Insecta			
		Trichoptera			
		Leucotrichia sp.	X		
18.	Howell Run, tributary to North Branch Potomac, was sampled at W.Va.Rt.46 in Shaw, W.Va.	Arthropoda			
		Crustacea			
		Malacostraca			
		Decapoda			
		Cambarus sp.	X		
		Isopoda			
		Asellus sp.	X	Not taken	
		Insecta			
		Diptera			
		Chironomidae			
		Chironomus sp.	X		
		Mollusca			
		Gastropda			
		Pulmonata			
		Physa sp.	X		
19.	Piney Swamp Run, tributary to North Branch Potomac, was sampled at culvert on W.Va. Rt.46 approx. 5 mi. SW of Piedmont, W.Va. & ½ mi. east of Cross Church, W.Va.	Arthropoda			
		Insecta			
		Megaloptera			
		Sialis sp.	X	Not taken	
		Diptera			
		Tipulidae			
		Eriocera sp.	X		
		Chironomidae			
		Chironomus sp.	X		

TABLE II (Continued)

Station No.	Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. Of Each Organism in Sq.Ft. Sample	Percent of Quantitative Sample
20.	Piney Swamp Run, 1¼ mile west of Beryl, West Virginia	Arthropoda			
		Insecta			
		Diptera			
		Chironomidae			
		Chironomus sp.	X	Not taken	
21.	North Branch Potomac River at Beryl, W.Va. upstream from the Savage River	0	---	Not taken	
22.	Savage River, tributary to North Branch Potomac River, was sampled at Savage River Forest Rd. Bridge immediately upstream from Aaron Run near Bloomington, Md.	Annelida			
		Oligochaeta			
		Tubificidae			
		Tubifex sp.	X	10	5.26
		Arthropoda			
		Crustacea			
		Malacostraca			
		Amphipoda			
		Gammarus sp.	X		
		Arthropoda			
		Insecta			
		Plecoptera			
		Acroneuria sp.	X		
		Ephemeroptera			
		Baetis sp.	X	69	36.31
		Heptagenia sp.	X	7	3.68
		Iron sp.	X	3	1.58
		Isonychia sp.	X	1	0.53
		Paraleptophlebia sp.	X	3	1.58
		Stenonema sp.	X	11	5.79
		Trichoptera			
		Hydropsyche sp.	X	19	10.00
		Wormaldia sp.	X	6	3.16
		Diptera			
		Simuliidae			
		Simulium sp.	X	3	1.58
		Chironomidae			
		Polypedilum sp.	X	58	30.53

TABLE II (Continued)

Station No.	Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. Of Each Organism in Sq.Ft. Sample	Percent of Quantitative Sample
22.	Continued	Diamesinae	X		
		Total No. of organisms per sq.foot		190	
23.	Aaron Run, tributary to Savage River, was sampled approx. 20 yds.upstream from mouth at Savage R.Forest Rd.Bridge near Bloomington, Maryland	0	---	Not taken	
24.	Savage River immediately upstream from mouth at Maryland Rt.135 Bridge near Bloomington	Annelida			
		Oligochaeta			
		Lumbriculidae	X	2	4.35
		Arthropoda			
		Insecta			
		Ephemeroptera			
		Paraleptophlebia sp.	X		
		Trichoptera			
		Hydropsyche sp.	X		
		Diptera			
		Rhagionidae			
		Atherix sp.	X	11	23.91
		Psychodidae			
		Psychoda sp.	X	1	2.17
		Chironomidae			
		Diamesinae	X	32	69.57
		Total No.of organisms per sq.ft.		46	
25.	North Branch Potomac River was sampled off Md.Rt.135 between Savage R.& W.Va. Pulp & Paper Co., Luke, Md.	0	---	Not taken	

TABLE II (Continued)

Station No.	Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. Of Each Organism in Sq.Ft. Sample	Percent of Quantitative Sample
26.	North Branch Potomac River at Piedmont, W.Va. Bridge immediately downstream from W.Va. Pulp & Paper Co., Luke, Maryland	0	---	Not taken	
27.	Georges Creek, tributary to North Branch Potomac River, was sampled at Shaft Rd. Bridge downstream from Frostburg, Md.	Annelida			
		Oligochaeta			
		Lumbriculidae	X	1	0.36
		Naididae			
		Nais sp.	X	1	0.36
		Tubificidae			
		Tubifex sp.	X	248	90.19
		Arthropoda			
		Crustacea			
		Malacostraca			
		Isopoda			
		Asellus sp.	X		
		Insecta			
		Diptera			
		Syrphidae			
		Eristalis sp.	X		
		Psychodidae			
		Psychoda sp.	X	24	8.73
		Tetanoceridae	X	1	0.36
		Chironomidae			
		Chironomus sp.	X		
		Total No. of organisms per sq.ft.		275	
28.	Moore's Run, tributary to Georges Creek, was sampled at Dogwood Flats, Md.	Arthropoda			
		Insecta			
		Megaloptera			
		Sialis sp.	X		
		Diptera		Not taken	
		Chironomidae			
		Chironomus sp.	X		

TABLE II (Continued)

Station No. Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No.Of Each Organism in Sq.Ft.Sample	Percent of Quantitative Sample
29. Mill Run, tributary to Georges Creek, was sampled at Morrison, Maryland	Arthropoda			
	Insecta			
	Megaloptera			
	Sialis sp.	X		
	Diptera		Not taken	
	Chironomidae			
	Chironomus sp.	X		
30. Georges Creek at Franklin, Md. off Md. Route 36	Arthropoda			
	Insecta			
	Megaloptera			
	Sialis sp.	X		
	Diptera		Not taken	
	Chironomidae			
	Chironomus sp.	X		
31. Georges Creek approx.100 yds. upstream from Md. Route 135 Bridge in Westernport, Md.	Arthropoda			
	Insecta			
	Diptera			
	Chironomidae			
	Chironomus riparius	X	152	45.24
	Polypedilum sp.	X	184	54.76
	Total No.of organisms per square foot		336	
32. North Potomac River at Poland, Maryland	Annelida			
	Oligochaeta			
	Tubificidae		Not taken	
	Tubifex sp.	X		
33. North Branch Potomac River at Keyser, W.Va. approx. 100 yds. downstream from U.S. 220 Bridge	Annelida			
	Oligochaeta			
	Tubificidae			
	Tubifex sp.	X	97	80.83

TABLE II (Continued)

Station No. Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No.Of Each Organism in Sq.Ft.Sample	Percent of Quantitative Sample
33. Continued	Arthropoda			
	Insecta			
	Odonata			
	Anisoptera			
	Somatochlora sp.	X		
	Diptera			
	Chironomidae			
	Metriocnemus sp.	X	21	17.50
	Culcidae			
	Culex sp.	X		
	Tipulidae			
	Tipula sp.	X	2	1.67
	Total No.of organisms per square foot		120	
34. North Branch Potomac River at the Black Oak Rd. upstream from Rawlings, Md.	Annelida			
	Oligochaeta			
	Tubificidae			
	Tubifex sp.	X	8	2.68
	Arthropoda			
	Insecta			
	Odonata			
	Anisoptera			
	Somatochlora sp.	X		
	Coleoptera			
	Berosus sp.	X	39	13.09
	Dineutus sp.	X	1	0.34
	Megaloptera			
	Sialis sp.	X	1	0.34
	Diptera			
	Chironomidae			
	Cryptochironomus sp.	X		
	Polypedilum sp.	X	232	77.85
	Tipulidae			
	Tipula sp.	X	17	5.70

TABLE II (Continued)

Station No. Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No.Of Each Organism in Sq.Ft.Sample	Percent of Quantitative Sample
34. Continued	Mollusca			
	Gastropoda			
	Pulmonata			
	Physa sp.	X		
	Total number of organisms per sq.ft.		298	
35. North Branch Potomac River at the Pinto Bridge upstream from Cumberland, Md.	Arthropoda			
	Insecta			
	Diptera			
	Chironomidae			
	Diamesinae	X		
	Mollusca		Not taken	
	Gastropoda			
	Pulmonata			
	Physa sp.	X		
36. North Branch Potomac at the Cumberland Fairgrounds near Potomac Park, Md.	Mollusca			
	Gastropoda			
	Pulmonata			
	Physa sp.	X	Not taken	
37. North Branch Potomac River at W.Va. Rt.28 Bridge (Ridgely Br.) at Cumberland, Md.	Annelida			
	Oligochaeta			
	Tubificidae			
	Tubifex sp.	X		
	Arthropoda			
	Insecta			
	Diptera			
	Chironomidae			
	Cryptochironomus sp.	X	1	100.00
	Diamesinae	X		
	Mollusca			
	Gastropoda			
	Pulmonata			
	Physa sp.	X		
	Total No.of organisms per sq. foot		1	

TABLE II (Continued)

Station No. Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. Of Each Organism in Sq. Ft. Sample	Percent of Quantitative Sample
38. Wills Creek, tributary to North Branch Potomac, was sampled at Ellerslie, Md. just south of Pa. state line	Nemata	X	4	2.82
	Annelida			
	Oligochaeta			
	Lumbriculidae	X	1	0.70
	Platyhelminthes			
	Turbellaria			
	Trieladia			
	Dugesia sp.	X	1	0.70
	Arthropoda			
	Insecta			
	Ephemoroptera			
	Heptagenia sp.	X	14	9.86
	Isonychia sp.	X	14	9.86
	Stenonema sp.	X		
	Tricorythodes sp.	X		
	Trichoptera			
	Cheumatopsyche sp.	X	1	0.70
	Helicopsyche sp.	X	1	0.70
	Hydropsyche sp.	X	55	38.74
	Wormaldia sp.	X		
	Odonata			
	Anisoptera			
	Macromia sp.	X		
	Coleoptera			
	Psephenus sp.	X	13	9.16
	Stenelmis sp.	X	1	0.70
	Diptera			
	Rhagionidae			
	Atherix sp.	X	1	0.70
	Chironomidae			
	Diamesinae	X	26	18.31
	Mollusca			
	Gastropoda			
	Pulmonata			
	Lymnaea sp.	X	10	7.05
	Total No. of organisms per sq. foot		142	

TABLE II (Continued)

Station No.	Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. Of Each Organism in Sq. Ft. Sample	Percent of Quantitative Sample
39.	Jennings Run, tributary to Wills Creek, was sampled at east edge of Barrelville, Md. off Md. Rt. 36	Arthropoda Insecta Diptera Chironomidae *Metriocnemus* sp.	X	Not taken	
40.	Jennings Run at Corriganville, Md. Bridge off Md. Rt. 36	Arthropoda Insecta Ephemeroptera *Ameletus* sp. Trichoptera *Chimarra* sp. *Macronemum* sp. *Neophylax* sp.	X X X X	Not taken	
41.	Hoffman Tunnel Discharge, tributary to Braddock Run, was sampled at Clarysville, Md. off Md. Rt. 55	0	---	Not taken	
42.	Braddock Run, tributary to Wills Creek, was sampled at Narrows Park immediately upstream from its confluence with Wills Creek	0	---	Not taken	
43.	Wills Creek at U.S.G.S. Gage Station at downstream edge of Eckhart Junction, Maryland	Arthropoda Insecta Diptera Chironomidae *Tendipes riparius* Diamesinae	X X	Not taken	
44.	Wills Creek, tributary to North Branch Potomac, was sampled off Mechanic St. & Henderson Blvd. in Cumberland, Maryland	Arthropoda Insecta Coleoptera *Berosus* sp. *Gyrinus* sp.	X X		

TABLE II (Continued)

Station No.	Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. Of Each Organism in Sq. Ft. Sample	Percent of Quantitative Sample
44.	Continued	Diptera			
		Chironomidae			
		Chironomus sp.	X	Not taken	
		Diamesinae	X		
		Mollusca			
		Gastropoda			
		Pulmonata			
		Physa sp.	X		
45.	North Branch Potomac River at Wiley Ford Bridge at south edge of Cumberland, Maryland	Annelida			
		Hirundinea			
		Erpobdella sp.	X		
		Helobdella sp.	X		
		Arthropoda			
		Crustacea			
		Malacostraca			
		Amphipoda			
		Gammarus sp.	X	Not taken	
		Insecta			
		Coleoptera			
		Laccophilus sp.	X		
		Diptera			
		Chironomidae			
		Corynoneura sp.	X		
		Mollusca			
		Gastropoda			
		Pulmonata			
		Physa sp.	X		
*47.	North Branch Potomac River approx. 100 yds. downstream from Western Md. RR adjacent to Cumberland Municipal Airport in West Virginia	Annelida			
		Oligochaeta			
		Tubificidae			
		Tubifex sp.	X	Not taken	
		Arthropoda			
		Insecta			
		Diptera			
		Chironomidae	X		

*Sta. Nos. 46 & 47 out of context.

TABLE II (Continued)

Station No. Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. Of Each Organism in Sq. Ft. Sample	Percent of Quantitative Sample
46. Evitts Creek, tributary to North Branch Potomac, was sampled at Md. Rt. 51 Bridge at SE edge of Cumberland, Maryland	Annelida			
	Oligochaeta			
	Lumbriculidae	X	17	40.48
	Arthropoda			
	Crustacea			
	Malacostraca			
	Amphipoda			
	Hyalella sp.	X		
	Decapoda			
	Cambarus sp.	X		
	Insecta			
	Epheme roptera			
	Isonychia sp.	X		
	Trichoptera			
	Cheumato psyche sp.	X	1	2.38
	Odonata			
	Anisoptera			
	Erythemis sp.	X		
	Zygoptera			
	Argia sp.	X		
	Ischnura sp.	X		
	Diptera			
	Chironomidae			
	Metriocnemus sp.	X	24	57.14
	Polypedilum sp.	X		
	Mollusca			
	Gastropoda			
	Pulmonata			
	Heliosoma sp.	X		
	Lymnaea sp.	X		
	Physa sp.	X		
	Pelecypoda			
	Sphaeriidae			
	Sphaerium sp.	X		
	Total No. of organisms per square foot		42	

*Sta. Nos. 46 & 47 out of context

TABLE II (Continued)

Station No. Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No.Of Each Organism in Sq.Ft.Sample	Percent of Quantitative Sample
48. North Branch Potomac River approx. 100 yds.upstream from B&O RR & downstream from Pittsburgh Plate & Glass Co.at North Branch, Maryland	Annelida			
	Oligochaeta			
	Tubificidae			
	Tubifex sp.	X	12	46.15
	Hirudinea			
	Erpobdella sp.	X	7	26.92
	Placobdella sp.	X		
	Arthropoda			
	Crustacea			
	Malacostraca			
	Amphipoda			
	Gammarus sp.	X		
	Decapoda			
	Cambarus sp.	X		
	Isopoda			
	Asellus sp.	X		
	Insecta			
	Ephemeroptera			
	Ameletus sp.	X	3	11.54
	Odonata			
	Anisoptera			
	Macromia sp.	X		
	Zygoptera			
	Argia sp.	X		
	Coleoptera			
	Berosus sp.	X	1	3.85
	Laccophilus sp.	X		
	Diptera			
	Chironomidae			
	Metriocnemus sp.	X	3	11.54
	Mollusca			
	Gastropoda			
	Pulmonata			
	Physa sp.	X		
	Total No.of organisms per square foot		26	

TABLE II (Continued)

Station No.	Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. Of Each Organism in Sq. Ft. Sample	Percent of Quantitative Sample
49.	Patterson Creek, tributary to North Branch Potomac, was sampled approx. 100 yds. upstream from W.Va.Rt.28 Bridge at Fort Ashby, W.Va.	Arthropoda			
		Crustacea			
		Malacostraca			
		Decapoda			
		Cambarus sp.	X		
		Insecta			
		Ephemeroptera			
		Heptagenia sp.	X	Not taken	
		Stenonema sp.	X		
		Odonata			
		Zygoptera			
		Ischnura sp.	X		
		Diptera	X		
50.	North Branch Potomac River opposite Spring Gap, Md.	Arthropoda			
		Crustacea			
		Malacostraca			
		Decapoda			
		Cambarus sp.	X		
		Isopoda			
		Asellus sp.	X		
		Insecta			
		Ephemeroptera		Not taken	
		Ameletus sp.	X		
		Siphlonurus sp.	X		
		Odonata			
		Zygoptera			
		Ischnura sp.	X		
		Diptera			
		Simuliidae			
		Simulium sp.	X		
		Chironomidae			
		Corynoneura sp.	X		
		Metriocnemus sp.			

TABLE II (Continued)

Station No. Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. Of Each Organism in Sq. Ft. Sample	Percent of Quantitative Sample
50. Continued	Mollusca			
	Gastropoda			
	Pulmonata			
	Ferrissia sp.	X		
	Physa sp.	X		
51. North Branch Potomac River at the Oldtown, Maryland Bridge	Annelida			
	Oligochaeta			
	Tubificidae			
	Limnodrilus sp.	X	29	21.17
	Arthropoda			
	Crustacea			
	Malacostraca			
	Decapoda			
	Cambarus sp.	X		
	Insecta			
	Ephemeroptera			
	Ameletus sp.	X		
	Tricorythodes sp.	X		
	Trichoptera			
	Cheumatopsyche sp.	X		
	Hydropsyche sp.	X		
	Megaloptera			
	Chauliodes sp.	X	6	4.38
	Coleoptera			
	Berosus sp.	X	2	1.46
	Diptera			
	Simuliidae			
	Simulium sp.	X		
	Chironomidae			
	Polypedilum sp.	X	10	7.30
	Diamesinae	X	1	0.73
	Mollusca			
	Gastropoda			
	Pulmonata			
	Ferrissia sp.	X	64	46.71

TABLE II (Continued)

Station No. Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. Of Each Organism in Sq. Ft. Sample	Percent of Quantitative Sample
51. Continued	Heliosoma sp.	X	3	2.19
	Physa sp.	X	21	15.33
	Pelecypoda			
	Sphaeriidae			
	Sphaerium sp.	X	1	0.73
	Total No. of Organisms Per sq. foot		137	
52. South Branch Potomac River (joins North Branch Potomac to form Potomac River) was sampled at U.S. Route 220 Bridge south of Petersburg, West Virginia	Arthropoda			
	Insecta			
	Ephemeroptera			
	Stenonema sp.	X		
	Coleoptera			
	Psephenus sp.	X	Not taken	
	Mollusca			
	Gastropoda			
	Pulmonata			
	Lymnaea sp.	X		
53. Lunice Creek, tributary to South Branch Potomac River, was sampled immediately downstream from Petersburg, W.Va. Sewage Treatment Plant outfall	Annelida			
	Oligochaeta			
	Tubificidae			
	Tubifex sp.	X	Not taken	
54. South Branch of Potomac River approx. $\frac{1}{2}$ mi. downstream from Lunice Creek & approx. 1 mi. downstream from Petersburg STP	Arthropoda			
	Insecta			
	Ephemeroptera			
	Stenonema sp.	X		
	Trichoptera			
	Hydropsyche sp.	X	Not taken	
	Mollusca			
	Gastropoda			
	Pulmonata			
	Lymnaea sp.	X		

TABLE II (Continued)

Station No.	Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. Of Each Organism in Sq. Ft. Sample	Percent of Quantitative Sample
55.	South Fork of South Branch of Potomac River was sampled at U.S.220 Bridge south of Moorefield, West Virginia	Annelida			
		Oligochaeta			
		Tubificidae			
		Limnodrilus sp.	X		
		Arthropoda			
		Insecta			
		Ephemeroptera			
		Iron sp.	X		
		Stenonema sp.	X		
		Trichoptera		Not taken	
		Chimarra sp.	X		
		Hydropsyche sp.	X		
		Odonata			
		Zygoptera			
		Argia sp.	X		
		Coleoptera			
		Psephenus sp.	X		
		Mollusca			
		Gastropoda			
		Pulmonata			
		Lymnaea sp.	X		
56.	South Fork of South Branch of Potomac River at Moorefield, W.Va. STP outfall	Annelida			
		Oligochaeta			
		Tubificidae		Not taken	
		Tubifex sp.	X		
57.	South Branch of Potomac River at U.S.Route 220 Bridge downstream from Moorefield, West Virginia	Arthropoda			
		Insecta			
		Ephemeroptera			
		Stenonema sp.	X		
		Mollusca		Not taken	
		Gastropoda			
		Pulmonata			
		Ferrissia sp.	X		
		Heliosoma sp.	X		
		Lymnaea sp.	X		

TABLE II (Continued)

Station No. Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. Of Each Organism in Sq. Ft. Sample	Percent of Quantitative Sample
58. South Branch Potomac River immediately downstream from unnamed tributary which receives effluent from Romney, W.Va. Sewage Treatment Plant	Arthropoda			
	Insecta			
	Ephemeroptera			
	Stenonema sp.	X	Not taken	
	Mollusca			
	Gastropoda			
	Pulmonata			
	Lymnaea sp.	X		
59. South Branch of Potomac River at French Station, W.Va. approx. $\frac{1}{4}$ mile upstream from the mouth	Platyhelminthes			
	Turbellaria			
	Trieladia			
	Dugesia sp.	X		
	Arthropoda			
	Crustacea			
	Malacostraca			
	Amphipoda			
	Gammarus sp.	X		
	Insecta			
	Plecoptera			
	Isoperla sp.	X	1	1.39
	Ephemeroptera			
	Caenis sp.	X		
	Isonychia sp.	X	7	9.72
	Stenonema sp.	X	8	11.11
	Trichoptera			
	Cheumatopsyche sp.	X	2	2.78
	Chimarra sp.	X		
	Hydropsyche sp.	X	33	45.83
	Limnephilus sp.	X	1	1.39
	Macronemum sp.	X		
	Wormaldia sp.	X	1	1.39
	Coleoptera			
	Dineutus sp.	X	2	2.78
	Psephenus sp.	X	1	1.39
	Odonata			
	Anisoptera			
	Celithemis sp.	X		

TABLE II (Continued)

Station No.	Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. Of Each Organism in Sq. Ft. Sample	Percent of Quantitative Sample
59.	Continued	Zygoptera			
		Argia sp.	X	1	1.39
		Ischnura sp.	X		
		Nehallenia sp.	X		
		Diptera			
		Chironomidae			
		Metriocnemus sp.	X		
		Procladius sp.	X	1	1.39
		Simuliidae			
		Simulium sp.	X	10	13.89
		Mollusca			
		Gastropoda			
		Prosobranchia			
		Pleurocerca sp.	X	3	4.16
		Pulmonata			
		Stagnicola sp.	X		
		Pelecypoda			
		Sphaeriidae			
		Sphaerium sp.	X	1	1.39
		Unionidae			
		Elliptio sp.	X		
		Total No. of Organisms per square foot		72	
60.	Potomac River at W.Va. Route 29 Bridge at Paw Paw, West Virginia	Platyhelminthes			
		Turbellaria			
		Tricladia			
		Dugesia sp.	X	8	2.91
		Arthropoda			
		Crustacea			
		Malacostraca			
		Amphipoda			
		Gammarus sp.	X	52	18.91
		Decapoda			
		Cambarus sp.	X		
		Insecta			
		Plecoptera			
		Acroneuria sp.	X	1	0.36

TABLE II (Continued)

Station No. Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. of Each Organism in Sq. Ft. Sample	Percent of Quantitative Sample
60. Continued	Ephemeroptera			
	Baetis sp.	X	19	6.91
	Ephemera sp.	X	2	0.73
	Stenonema sp.	X	45	16.36
	Trichoptera			
	Cheumatopsyche sp.	X	5	1.82
	Hydropsyche sp.	X	65	23.64
	Ithytrichia sp.	X	12	4.37
	Macronemum sp.	X	6	2.18
	Potamyia sp.	X		
	Wormaldia sp.	X	3	1.09
	Megaloptera			
	Corydalus sp.	X		
	Coleoptera			
	Dineutus sp.	X		
	Psephenus sp.	X	1	0.36
	Stenelmis sp.	X	49	17.82
	Odonata			
	Zygoptera			
	Argia sp.	X	5	1.82
	Enallagma sp.	X		
	Diptera			
	Chironomidae			
	Brillia sp.	X		
	Pentaneura sp.	X	1	0.36
	Procladius sp.	X	1	0.36
	Mollusca			
	Gastropoda			
	Prosobranchia			
	Pleurocerca sp.	X		
	Pulmonata			
	Ferrissia sp.	X		
	Physa sp.	X		
	Total No. of organisms per square foot		275	

TABLE II (Continued)

Station No. Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No.of Each Organism in Sq.Ft.Sample	Percent of Quantitative Sample
61. Cacapon River, tributary to the Potomac River, was sampled east of Great Cacapon, West Virginia at the W.Va. Route 9 Bridge	Platyhelminthes			
	Turbellaria			
	Tricladia			
	Dugesia sp.	X		
	Insecta			
	Ephemeroptera			
	Heptagenia sp.	X		
	Iron sp.	X		
	Isonychia sp.	X		
	Stenonema sp.	X		
	Trichoptera			
	Chimarra sp.	X	Not taken	
	Hydropsyche sp.	X		
	Megaloptera			
	Chauliades sp.	X		
	Odonata			
	Anisoptera			
	Epicordulia sp.	X		
	Coleoptera			
	Ectopria sp.	X		
	Mollusca			
	Gastropoda			
	Pulmonata			
	Heliosoma sp.	X		
	Lymnaea sp.	X		
62. Potomac River at Hagerstown Water Treatment Plant upstream from Williamsport, Maryland	Annelida			
	Hirudinea			
	Glossiphonia sp.	X		
	Arthropoda			
	Crustacea			
	Malacostraca			
	Amphipoda			
	Gammarus sp.	X		
	Insecta			
	Ephemeroptera			
	Stenonema sp.	X	Not taken	

TABLE II (Continued)

Station No. Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No.of Each Organism in Sq.Ft.Sample	Percent of Quantitative Sample
62. Continued	Odonata			
	Zygoptera			
	Ischnura sp.	X		
	Mollusca			
	Gastropoda			
	Prosobranchia			
	Goniobasis sp.	X		
	Pulmonata			
	Ferrissia sp.	X		
63. Conococheague Creek, tributary to Potomac River, was sampled at Md.Route 68 Bridge at Williamsport, Maryland	Platyhelminthes			
	Turbellaria			
	Tricladia			
	Dugesia sp.	X		
	Annelida			
	Hirudinea			
	Helobdella sp.	X		
	Arthropoda			
	Crustacea			
	Malacostraca			
	Amphipoda			
	Gammarus sp.	X		
	Insecta			
	Ephemeroptera			
	Baetis sp.	X		
	Trichoptera			
	Hydropsyche sp.	X	Not taken	
	Odonata			
	Anisoptera			
	Erythemis sp.	X		
	Zygoptera			
	Argia sp.	X		
	Ischnura sp.	X		
	Mollusca			
	Gastropoda			
	Pulmonata			
	Physa sp.	X		

TABLE II (Continued)

Station No.	Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. of Each Organism in Sq. Ft. Sample	Percent of Quantitative Sample
64.	Opequon Creek, tributary to the Potomac River east of Martinsburg, West Virginia at the W.Va. Route 45 Bridge	Platyhelminthes			
		Turbellaria			
		Tricladia			
		Dugesia sp.	X		
		Annelida			
		Oligochaeta			
		Naididae			
		Nais sp.	X		
		Hirudinea			
		Erpobdella sp.	X	Not taken	
		Glossiphonia sp.	X		
		Arthropoda			
		Crustacea			
		Malacostraca			
		Isopoda			
		Asellus sp.	X		
		Insecta			
		Ephemeroptera			
		Epeorus sp.	X		
		Stenonema sp.	X		
		Trichoptera			
		Cheumato psyche sp.	X		
		Chimarra sp.	X		
		Hydropsyche sp.	X		
		Coleoptera			
		Psephenus sp.	X		
		Odonata			
		Zygoptera			
		Argia sp.	X		
		Ischnura sp.	X		
		Diptera			
		Simuliidae			
		Simulium sp.	X		
		Chironomidae			
		Polypedilum sp.	X		
		Mollusca			
		Gastropoda			
		Pulmonata			

TABLE II (Continued)

Station No. Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. of Each Organism in Sq. Ft. Sample	Percent of Quantitative Sample
64. Continued	Ferrissia sp.	X		
	Heliosoma sp.	X		
	Lymnaea sp.	X		
65. Potomac River at the Maryland Route 34 Bridge opposite Shepherdstown, West Virginia	Platyhelminthes			
	Turbellaria			
	Tricladia			
	Dugesia sp.	X		
	Arthropoda			
	Crustacea			
	Malacostraca			
	Amphipoda			
	Gammarus sp.	X		
	Insecta			
	Ephemeroptera			
	Stenonema sp.	X	Not taken	
	Coleoptera			
	Ectopria sp.	X		
	Psephenus sp.	X		
	Stenelmis sp.	X		
	Mollusca			
	Gastropoda			
	Prosobranchia			
	Goniobasis sp.	X		
	Viviparus sp.	X		
	Pulmonata			
	Physa sp.	X		
	Pelecypoda			
	Sphaeriidae			
	Sphaerium sp.	X		
66. Antietam Creek at the bridge in Antietam, Maryland	Platyhelminthes			
	Turbellaria			
	Tricladia			
	Dugesia sp.	X	1	0.14
	Annelida			
	Oligochaeta			
	Plesiopora			

TABLE II (Continued)

Station No. Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. of Each Organism in Sq. Ft. Sample	Percent of Quantitative Sample
66. Continued	Lumbriculidae	X	1	0.14
	Hirudinea			
	Erpobdella sp.	X	3	0.42
	Helobdella sp.	X		
	Arthropoda			
	Crustacea			
	Malostraca			
	Amphipoda			
	Gammarus sp.	X		
	Decapoda			
	Cambarus sp.	X		
	Insecta			
	Ephemeroptera			
	Ameletus sp.	X		
	Isonychia sp.	X	32	4.49
	Tricorythodes sp.	X	8	1.12
	Trichoptera			
	Hydropsyche sp.	X	200	28.05
	Macronemum sp.	X		
	Coleoptera			
	Psephenus sp.	X		
	Stenelmis sp.	X	8	1.12
	Diptera			
	Chironomidae			
	Polypedilum sp.	X	440	61.71
	Simulidae			
	Simulium sp.	X		
	Tabanidae			
	Tabanus sp.	X		
	Mollusca			
	Gastropoda			
	Prosobranchia			
	Liopiax sp.		13	1.83
	Pleurocerca sp.	X	6	0.84
	Pulmonata			
	Ferrissia sp.	X		
	Gyraulus sp.	X	1	0.14
	Physa sp.	X		

TABLE II (Continued)

Station No. Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. of Each Organism in Sq. Ft. Sample	Percent of Quantitative Sample
66. Continued	Pelecypoda			
	Sphaeriidae			
	Sphaerium sp.	X		
	Total No. of organisms per sq. foot		713	
67. Potomac River at Harpers Ferry, West Virginia, approx. 100 yards downstream from the power plant	Annelida			
	Hirudinea			
	Erpobdella sp.	X		
	Arthropoda			
	Crustacea			
	Malacostraca			
	Amphipoda			
	Gammarus sp.	X		
	Isopoda			
	Asellus sp.	X	Not taken	
	Insecta			
	Ephemeroptera			
	Stenonema sp.	X		
	Trichoptera			
	Cheumatopsyche sp.	X		
	Chimarra sp.	X		
	Hydropsyche sp.	X		
	Coleoptera			
	Psephenus sp.	X		
	Stenelmis sp.	X		
	Mollusca			
	Gastropoda			
	Pulmonata			
	Physa sp.	X		
68. Shenandoah River at Harpers Ferry National Park approximately 1/3 mile downstream from the U.S. 340 Bridge	Platyhelminthes			
	Turbellaria			
	Tricladia			
	Dugesia sp.	X		
	Annelida			
	Oligochaeta			
	Plesiopora			

TABLE II (Continued)

Station No. Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. of Each Organism in Sq. Ft. Sample	Percent of Quantitative Sample
68. Continued	Lumbriculidae	X		
	Tubificidae			
	Tubifex sp.	X		
	Hirudinea			
	Erpobdella sp.	X		
	Placobdella sp.	X		
	Arthropoda			
	Crustacea			
	Malacostraca			
	Amphipoda			
	Gammarus sp.	X		
	Insecta			
	Ephemeroptera			
	Stenonema sp.	X		
	Trichoptera			
	Cheumatopsyche sp.	X		
	Helicopsyche sp.	X	Not taken	
	Hydropsyche sp.	X		
	Macronemum sp.	X		
	Psychomyia sp.	X		
	Coleoptera			
	Dineutus sp.	X		
	Psephenus sp.	X		
	Stenelmis sp.	X		
	Odonata			
	Anisoptera			
	Macromia sp.	X		
	Zygoptera			
	Argia sp.	X		
	Ischnura sp.	X		
	Megaloptera			
	Corydalis sp.	X		
	Diptera			
	Chironomidae			
	Chironomus sp.	X		
	Polypedilum sp.	X		
	Diamesinae	X		
	Simuliidae			

TABLE II (Continued)

Station No. Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. of Each Organism in Sq. Ft. Sample	Percent of Quantitative Sample
68. Continued	Simulium sp.	X		
	Mollusca			
	Gastropoda			
	Pulmonata			
	Ferrissia sp.	X		
	Physa sp.	X		
69. Unnamed tributary to Potomac River which flows through Brunswick, Md. & enters Potomac approx. $\frac{1}{4}$ mi. downstream from Va. Rt. 287 Bridge	0	---	Not taken	
70. Potomac River approx. $\frac{1}{2}$ mile downstream from Va. Rt. 287 Bridge & opposite Brunswick, Md. Sewage Treatment Plant	0	---	Not taken	
71. Catoctin Creek, tributary to Potomac River, was sampled at Md. Rt. 464 Bridge NE of Brunswick, Maryland	Arthropoda			
	Insecta			
	Trichoptera			
	Chimarra sp.	X		
	Coleoptera		Not taken	
	Psephenus sp.	X		
72. Potomac River at U.S. Rt. 15 Bridge at Point of Rocks, Maryland	Arthropoda			
	Crustacea			
	Malacostraca			
	Amphipoda			
	Gammarus sp.	X		
	Insecta			
	Ephemeroptera		Not taken	
	Stenonema sp.	X		
	Diptera			
	Chironomidae			
	Diamesinae	X		
	Mollusca			
	Gastropoda			

TABLE II (Continued)

Station No. Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. of Each Organism in Sq. Ft. Sample	Percent of Quantitative Sample
72. Continued	Prosobranchia			
	Goniobasis sp.	X		
	Pulmonata			
	Ferrissia sp.	X		
	Physa sp.	X		
73. Monocacy River, tributary to Potomac River, was sampled at Route 28 Bridge near Furnace Ford, Maryland	Platyhelminthes			
	Turbellaria			
	Tricladia			
	Dugesia sp.	X	60	9.92
	Annelida			
	Oligochaeta			
	Lumbriculidae	X	1	0.16
	Tubificidae			
	Branchiura sp.	X		
	Arthropoda			
	Crustacea			
	Malacostraca			
	Amphipoda			
	Hyalella sp.	X		
	Insecta			
	Plecoptera			
	Acroneuria sp.	X		
	Perlinae sp.	X		
	Ephemeroptera			
	Ameletus sp.	X		
	Hexagenia sp.	X	5	0.83
	Isonychia sp.	X	50	8.26
	Stenonema sp.	X	94	15.54
	Tricorythodes sp.	X		
	Megaloptera			
	Corydalis sp.	X		
	Sialis sp.	X		
	Trichoptera			
	Hydropsyche sp.	X	94	15.54
	Macronemum sp.	X		
	Odonata			
	Zygoptera			

TABLE II (Continued)

Station No. Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. of Each Organism in Sq. Ft. Sample	Percent of Quantitative Sample
73. Continued	Agrion sp.	X		
	Coleoptera			
	Stenelmis sp.	X	153	25.29
	Diptera			
	Chironomidae			
	Cryptochirnomus sp.	X	140	23.14
	Tipulidae			
	Tipula sp.	X	8	1.32
	Mollusca			
	Gastropoda			
	Prosobranchia			
	Amnicola sp.	X		
	Total No. of organisms per square foot		605	
74. Potomac River at White's Ferry, Maryland	Arthropoda			
	Insecta			
	Diptera			
	Chironomidae			
	Diamesinae	X	Not taken	
75. Potomac River at Edward's Ferry, Maryland	Arthropoda			
	Crustacea			
	Malacostraca			
	Amphipoda			
	Gammarus sp.	X	Not taken	
	Insecta			
	Plecoptera			
	Alloperla sp.	X		
	Odonata			
	Zygoptera			
	Argia sp.	X		
76. Tuscarora Creek, tributary to Goose Creek which is a tributary to Potomac River, was sampled at U.S Route 15 Bridge upstream from Leesburg, Virginia	Platyhelminthes			
	Turbellaria			
	Tricladia			
	Dugesia sp.	X	23	17.42

TABLE II (Continued)

Station No. Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. of Each Organism in Sq. Ft. Sample	Percent of Quantitative Sample
76. Continued	Arthropoda			
	Crustacea			
	Malacostraca			
	Amphipoda			
	Hyalella sp.	X		
	Insecta			
	Ephemeroptera			
	Ameletus sp.	X		
	Baetis sp.	X		
	Caenis sp.	X		
	Isonychia sp.	X	9	6.89
	Stenonema sp.	X		
	Trichoptera			
	Chimarra sp.	X	4	3.03
	Hydropsyche sp.	X	24	18.18
	Coleoptera			
	Berosus sp.	X		
	Psephenus sp.	X	2	1.52
	Stenelmis sp.	X	3	2.27
	Odonata			
	Zygoptera			
	Argia sp.	X		
	Ischnura sp.	X		
	Diptera			
	Chironomidae			
	Diamesinae	X	56	42.42
	Simuliidae			
	Simulium sp.	X	9	6.82
	Mollusca			
	Pelecypoda			
	Sphaeriidae			
	Sphaerium sp.	X	2	1.52
	Total No. of organisms per square foot		132	

TABLE II (Continued)

Station No. Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. of Each Organism in Sq. Ft. Sample	Percent of Quantitative Sample
77. Tuscarora Creek downstream from Leesburg, Va. Sewage Treatment Plant at Douglas School Road Bridge (Godfrey Field Rd.)	Annelida			
	Oligochaeta			
	Tubificidae			
	Tubifex sp.	X	3,506	95.24
	Arthropoda			
	Insecta			
	Diptera			
	Chironomidae			
	Chironomus sp.	X	174	4.73
	Mollusca			
	Gastropoda			
	Pulmonata			
	Physa sp.	X		
	Pelecypoda			
	Sphaeriidae			
	Sphaerium sp.	X	1	0.03
	Total No. of organisms per square foot		3,681	
78. Tuscarora Creek at the upstream edge of Goose Creek Country Club Golf Course	Annelida			
	Oligochaeta			
	Tubificidae			
	Limnodrilus sp.	X	3	10.71
	Tubifex sp.	X	25	89.29
	Arthropoda			
	Insecta			
	Ephemeroptera			
	Baetis sp.	X		
	Diptera			
	Chironomidae			
	Diamesinae	X		
	Simuliidae			
	Simulium sp.	X		
	Mollusca			
	Gastropoda			
	Pulmonata			
	Physa sp.	X		
	Total No. of organisms per square foot		28	

TABLE II (Continued)

Station No. Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. of Each Organism in Sq. Ft. Sample	Percent of Quantitative Sample
79. Goose Creek, tributary to Potomac River, was sampled approx. 100 yards downstream from Tuscarora Creek near the Virginia Route 7 Bridge	Platyhelminthes			
	Turbellaria			
	Tricladia			
	Dugesia sp.	X	5	4.90
	Annelida			
	Oligochaeta			
	Lumbriculidae	X	3	2.94
	Tubificidae			
	Tubifex sp.	X	1	0.98
	Arthropoda			
	Insecta			
	Plecoptera			
	Nemoura sp.	X	5	4.90
	Pteronarcys sp.	X	1	0.98
	Ephemeroptera			
	Isonychia sp.	X	4	3.92
	Stenonema sp.	X		
	Trichoptera			
	Cheumatopsyche sp.	X	22	21.57
	Chimarra sp.	X	24	23.53
	Hydropsyche sp.	X	14	13.73
	Macronemum sp.	X	1	0.98
	Megaloptera			
	Sialis sp.	X	1	0.98
	Coleoptera			
	Berosus sp.	X	1	0.98
	Stenelmis sp.	X	3	2.94
	Odonata			
	Zygoptera			
	Argia sp.	X		
	Diptera			
	Chironomidae			
	Diamesinae	X	4	3.92
	Simuliidae			
	Simulium sp.	X	7	6.87

TABLE II (Continued)

Station No.	Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. of Each Organism in Sq. Ft. Sample	Percent of Quantitative Sample
79.	Continued	Mollusca			
		Gastropoda			
		Prosobranchia			
		Amnicola sp.	X	2	1.96
		Pulmonata			
		Ferrissia sp.	X		
		Pelecypoda			
		Sphaeriidae			
		Sphaerium sp.	X	4	3.92
		Total No. of organisms per square foot		102	
80.	Goose Creek approximately $1\frac{1}{2}$ miles up from its mouth at the last riffle area	Annelida			
		Hirudinea			
		Placobdella sp.	X		
		Arthropoda			
		Insecta			
		Plecoptera			
		Isoperla sp.	X		
		Ephemeroptera			
		Ephemerella sp.	X		
		Isonychia sp.	X		
		Stenonema sp.	X		
		Trichoptera		Not taken	
		Chimarra sp.	X		
		Hydropsyche sp.	X		
		Odonata			
		Anisoptera			
		Epicordulia sp.	X		
		Diptera			
		Simuliidae			
		Simulium sp.	X		
		Mollusca			
		Gastropoda			
		Pulmonata			
		Lymnaea sp.	X		

TABLE II (Continued)

Station No. Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. of Each Organism in Sq. Ft. Sample	Percent of Quantitative Sample
81. Broad Run, tributary to the Potomac River, was sampled at Virginia Route 7 Bridge near Ashburn Junction, Va.	Platyhelminthes			
	Turbellaria			
	Tricladia			
	Dugesia sp.	X	7	0.96
	Nematomorpha			
	Gordiida	X	1	0.14
	Annelida			
	Oligochaeta			
	Lumbriculidae	X	3	0.41
	Tubificidae			
	Tubifex sp.	X	5	0.69
	Hirudinea			
	Erpobdella sp.	X	1	0.14
	Arthropoda			
	Crustacea			
	Malacostraca			
	Amphipoda			
	Gammarus sp.	X	10	1.38
	Insecta			
	Trichoptera			
	Cheumatopsyche sp.	X	16	2.20
	Hydropsyche sp.	X	399	54.96
	Coleoptera			
	Stenelmis sp.	X	43	5.92
	Diptera			
	Chironomidae			
	Polypedilum sp.	X	9	1.24
	Diamesinae	X	16	2.20
	Simuliidae			
	Simulium sp.	X	183	25.21
	Mollusca			
	Gastropoda			
	Pulmonata			
	Ferrissia sp.	X	1	0.14
	Physa sp.	X		
	Pelecypoda			
	Sphaeriidae			
	Sphaerium sp.	X	32	4.41

TABLE II (Continued)

Station No. Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. of Each Organism in Sq. Ft. Sample	Percent of Quantitative Sample
81. Continued	Total No. of organisms per square foot		726	
82. Potomac River near Seneca, Maryland off the Chesapeake & Ohio Canal	Annelida			
	Hirudinea			
	Erpobdella sp.	X		
	Arthropoda			
	Crustacea			
	Malacostraca			
	Amphipoda		Not taken	
	Gammarus sp.	X		
	Insecta			
	Ephemeroptera			
	Isonychia sp.	X		
83. Potomac River immediately upstream from the east fork of Sugarland Run in Virginia	Annelida			
	Oligochaeta			
	Tubificidae			
	Tubifex sp.	X		
	Arthropoda			
	Crustacea		Not taken	
	Malacostraca			
	Amphipoda			
	Gammarus sp.	X		
	Insecta			
	Plecoptera	X		
	Diptera			
	Chironomidae	X		
	Mollusca			
	Gastropoda			
	Pulmonata			
	Physa sp.	X		
	Pelecypoda			
	Sphaeriidae			
	Sphaerium sp.	X		

TABLE II (Continued)

Station No. Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. of Each Organism in Sq. Ft. Sample	Percent of Quantitative Sample
84. Right Fork of Folly Lick Branch, tributary to Sugarland Run which is a tributary to Potomac River, was sampled at Herndon, Virginia	Arthropoda			
	Insecta			
	Coleoptera			
	Laccophilus sp.	X		
	Odonata			
	Anisoptera			
	Cordulegaster sp.	X		
	Diptera			
	Chironomidae			
	Chironomus sp.	X	Not taken	
	Metriocnemus sp.	X		
	Culicidae			
	Culex sp.	X		
	Psychodidae			
	Psychoda sp.	X		
	Mollusca			
	Gastropoda			
	Pulmonata			
	Physa sp.	X		
85. Left Fork of Folly Lick Branch approximately 100 yards upstream from the right fork	Annelida			
	Oligochaeta			
	Tubificidae			
	Tubifex sp.	X		
	Arthropoda			
	Crustacea			
	Malacostraca			
	Isopoda			
	Asellus sp.	X		
	Decapoda			
	Cambarus sp.	X	Not taken	
	Insecta			
	Ephemeroptera			
	Ameletus sp.	X		
	Trichoptera			
	Hydropsyche sp.	X		
	Megaloptera			
	Sialis sp.	X		

TABLE II (Continued)

Station No. Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. of Each Organism in Sq. Ft. Sample	Percent of Quantitative Sample
85. Continued	Odonata			
	Zygoptera			
	Argia sp.	X		
	Ischnura sp.	X		
	Diptera			
	Chironomidae			
	Diamesinae	X		
	Tipulidae			
	Tipula sp.	X		
	Mollusca			
	Gastropoda			
	Pulmonata			
	Physa sp.	X		
86. Folly Lick Branch approximately 100 yards upstream from the Herndon, Virginia Sewage Treatment Plant	Annelida			
	Oligochaeta			
	Lumbriculidae	X		
	Tubificidae			
	Tubifex sp.	X	60	95.24
	Arthropoda			
	Crustacea			
	Malacostraca			
	Decapoda			
	Cambarus sp.	X		
	Insecta			
	Diptera			
	Chirononomidae			
	Polypedilum sp.	X		
	Diamesinae	X	3	4.76
	Mollusca			
	Gastropoda			
	Pulmonata			
	Physa sp.	X		
	Total No. of organisms per square foot		63	

TABLE II (Continued)

Station No.	Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. of Each Organism in Sq. Ft. Sample	Percent of Quantitative Sample
87.	Folly Lick Branch at the Herndon, Virginia Sewage Treatment Plant	Annelida			
		Oligochaeta			
		Tubificidae			
		Tubifex sp.	X		
		Arthropoda			
		Insecta		Not taken	
		Diptera			
		Simuliidae			
		Simulium sp.	X		
		Mollusca			
		Gastropoda			
		Pulmonata			
		Physa sp.	X		
88.	Folly Lick Branch at the Bridge on Virginia Route 228 north of Herndon, Va. and downstream from the Sewage Treatment Plant	Annelida			
		Oligochaeta			
		Tubificidae			
		Tubifex sp.	X	34	65.38
		Arthropoda			
		Crustacea			
		Malacostraca			
		Isopoda			
		Asellus sp.	X		
		Insecta			
		Diptera			
		Chironomidae			
		Polypedilum sp.	X	15	28.85
		Mollusca			
		Gastropoda			
		Pulmonata			
		Physa sp.	X	3	5.77
		Total No. of organisms per square foot		52	
89.	Sugarland Run off Virginia Route 228 immediately downstream from Folly Lick Branch	Annelida			
		Oligochaeta			
		Tubificidae			
		Tubifex sp.	X	1,691	97.52

TABLE II (Continued)

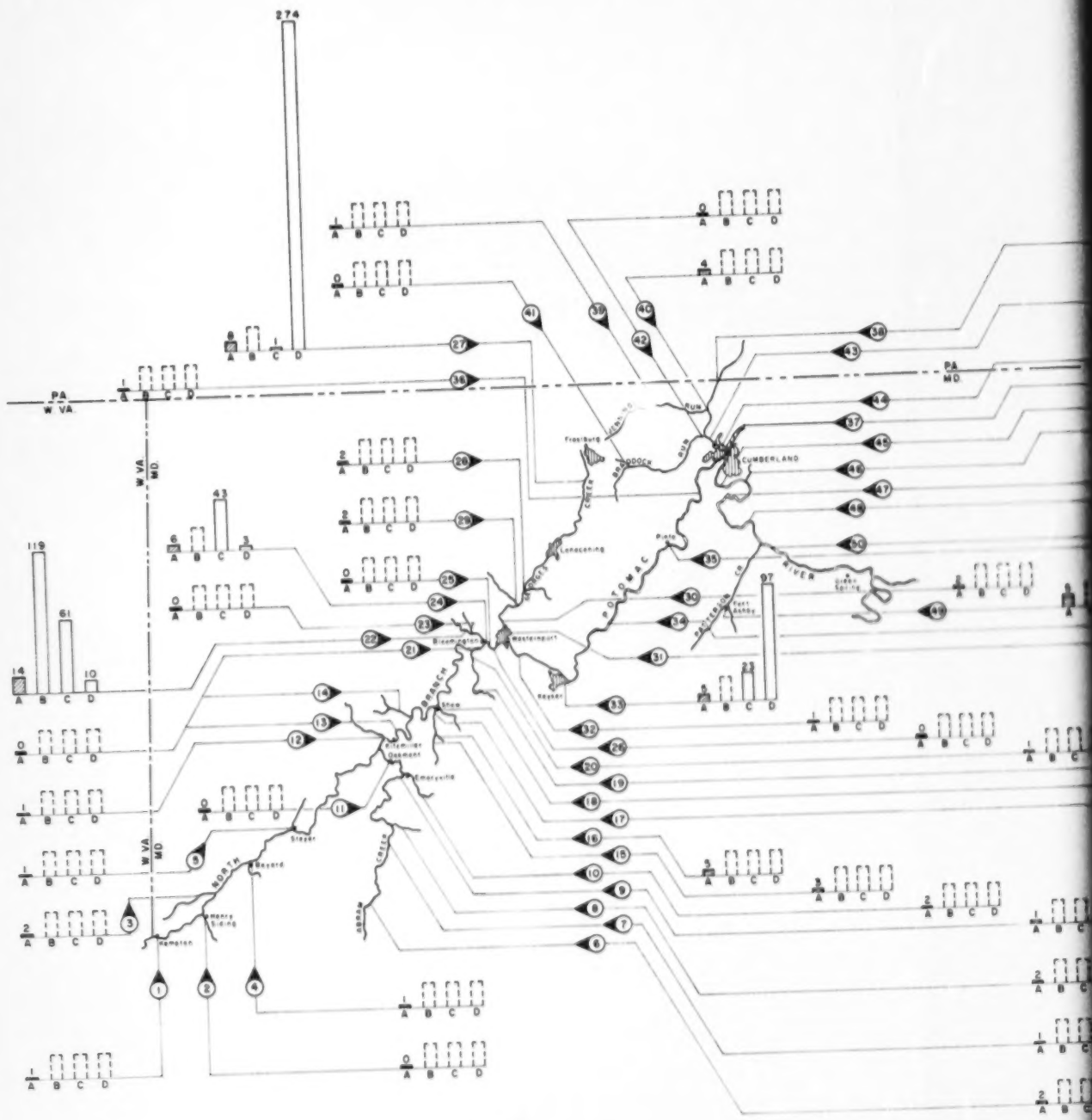
Station No. Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. of Each Organism in Sq. Ft. Sample	Percent of Quantitative Sample
89. Continued	Hirudinea			
	Glossiphonia sp.	X	10	0.58
	Arthropoda			
	Crustacea			
	Malacostraca			
	Isopoda			
	Asellus sp.	X		
	Insecta			
	Ephemeroptera			
	Ameletus sp.	X	1	0.06
	Trichoptera			
	Cheumatopsyche sp.	X	3	0.17
	Chimarra sp.	X	4	0.23
	Diptera			
	Chironomidae			
	Polypedilum sp.	X	11	0.63
	Procladius sp.	X	10	0.58
	Simuliidae			
	Simulium sp.	X		
	Mollusca			
	Gastropoda			
	Pulmonata			
	Physa sp.	X	4	0.23
	Total No. of organisms per square foot		1,734	
90. Sugarland Run, tributary to the Potomac River, was sampled at Virginia Route 7 Bridge	Annelida			
	Oligochaeta			
	Lumbriculidae	X	1	3.70
	Tubificidae			
	Tubifex sp.	X	14	51.86
	Hirudinea			
	Glossiphonia sp.	X	4	14.82
	Arthropoda			
	Crustacea			
	Malacostra			
	Isopoda			
	Asellus sp.	X	3	11.11

TABLE II (Continued)

Station No. Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. of Each Organism in Sq. Ft. Sample	Percent of Quantitative Sample
90. Continued	Insecta			
	Trichoptera			
	Cheumatopsyche sp.	X		
	Hydropsyche sp.	X	1	3.70
	Diptera			
	Chironomidae			
	Pentaneura sp.	X		
	Simuliidae			
	Simulium sp.	X	3	11.11
	Tipulidae			
	Tipula sp.	X	1	3.70
	Mollusca			
	Gastropoda			
	Pulmonata			
	Gyraulus sp.	X		
	Physa sp.	X		
	Total No. of organisms per square foot		27	
91. Sugarland Run approximately 100 yards upstream from the mouth at the culvert	Arthropoda			
	Crustacea			
	Malacostra			
	Amphipoda			
	Gammarus sp.	X		
	Isopoda			
	Asellus sp.	X	Not taken	
	Insecta			
	Diptera			
	Chironomidae			
	Chironomus sp.	X		
	Polypedilum sp.	X		
	Mollusca			
	Gastropoda			
	Pulmonata			
	Physa sp.	X		

TABLE II (Continued)

Station No.	Location & Description	Macro-Invertebrates Present	Present Only In Qualitative Sample	No. Of Each Organism in Sq. Ft. Sample	Percent of Quantitative Sample
92.	Potomac River opposite Lock #5 on the Chesapeake & Ohio Canal approximately 1 mile upstream from Chain Bridge, Washington, D.C.	Nemata	X		
		Arthropoda			
		Crustacea			
		Malacostraca			
		Amphipoda			
		Gammarus sp.	X		
		Isopoda			
		Asellus sp.	X		
		Insecta			
		Plecoptera		Not taken	
		Taeniopteryx sp.	X		
		Diptera			
		Simuliidae			
		Simulium sp.	X		
		Mollusca			
		Gastropoda			
		Prosobranchia			
		Amnicola sp.	X		
		Pulmonata			
		Physa sp.	X		



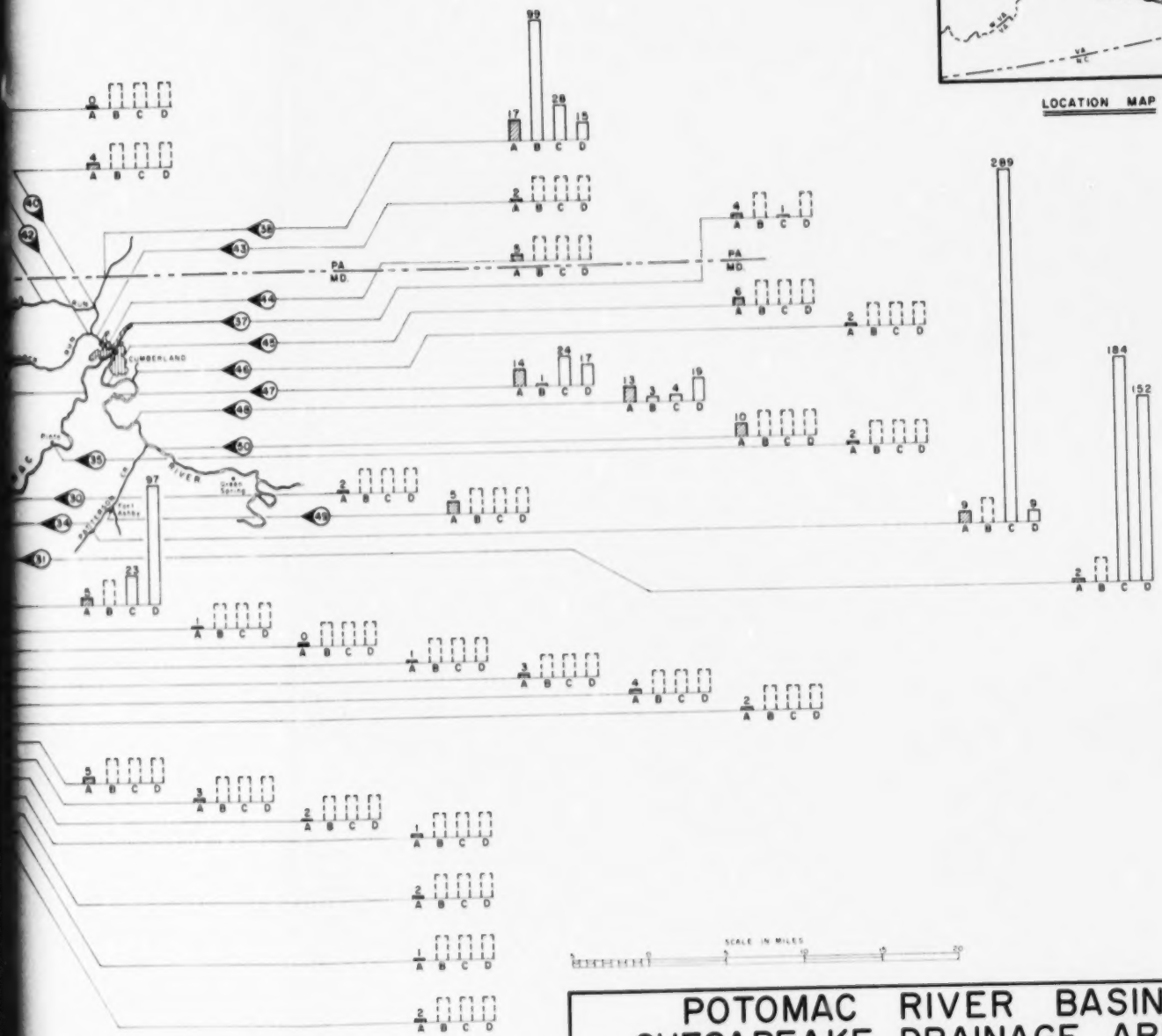
LEGEND:

- (9) STATION NUMBER
- 25 / B,C, or D — QUANTITATIVE SAMPLE TAKEN AND NO OF ORGANISMS FOUND PER SQ FT
- B,C, or D — QUANTITATIVE SAMPLE NOT TAKEN
- 30 / A — QUALITATIVE SAMPLE TAKEN AND No. OF KINDS (GENERA) OF ORGANISMS FOUND

BOTTOM ORGANISMS:

- B CLEAN WATER ORGANISMS FO... SQ FT SAMPLE
- C INTERMEDIATE ORGANISMS ... SQ FT SAMPLE
- D POLLUTION TOLERANT ORGAN... IN SQ FT SAMPLE
- A TOTAL No. OF KINDS, INCLUDI... A, B, & C

LOCATION MAP



BOTTOM ORGANISMS:

B CLEAN WATER ORGANISMS FOUND IN SQ FT SAMPLE

C INTERMEDIATE ORGANISMS FOUND IN SQ FT SAMPLE

D POLLUTION TOLERANT ORGANISMS FOUND IN SQ FT SAMPLE

A TOTAL No OF KINDS, INCLUDING TYPES A, B, & C

SAMPLE TAKEN AND NO. FOUND PER SQ FT

SAMPLE NOT TAKEN

SAMPLE TAKEN AND No OF OF ORGANISMS FOUND

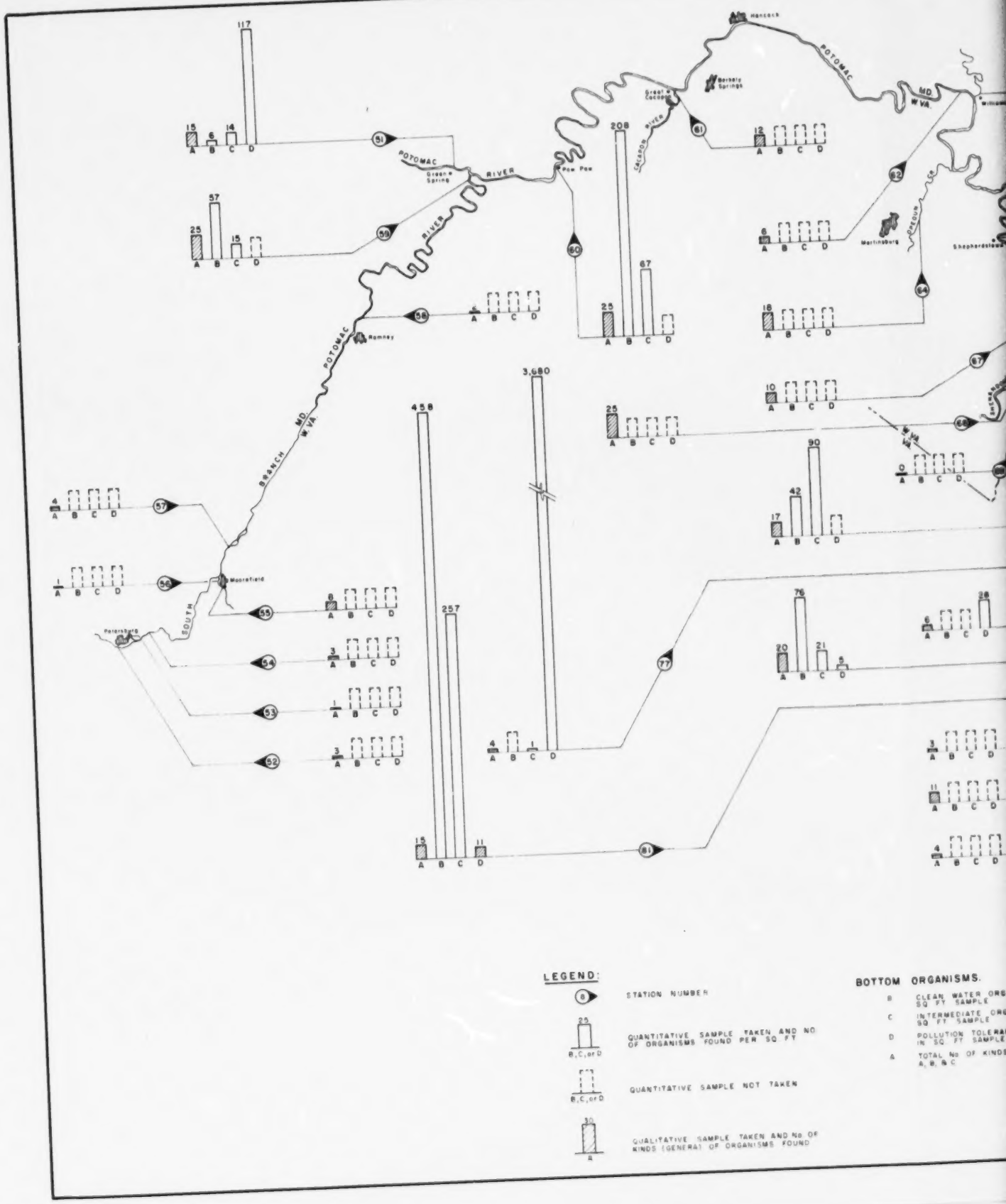
POTOMAC RIVER BASIN CHESAPEAKE DRAINAGE AREA

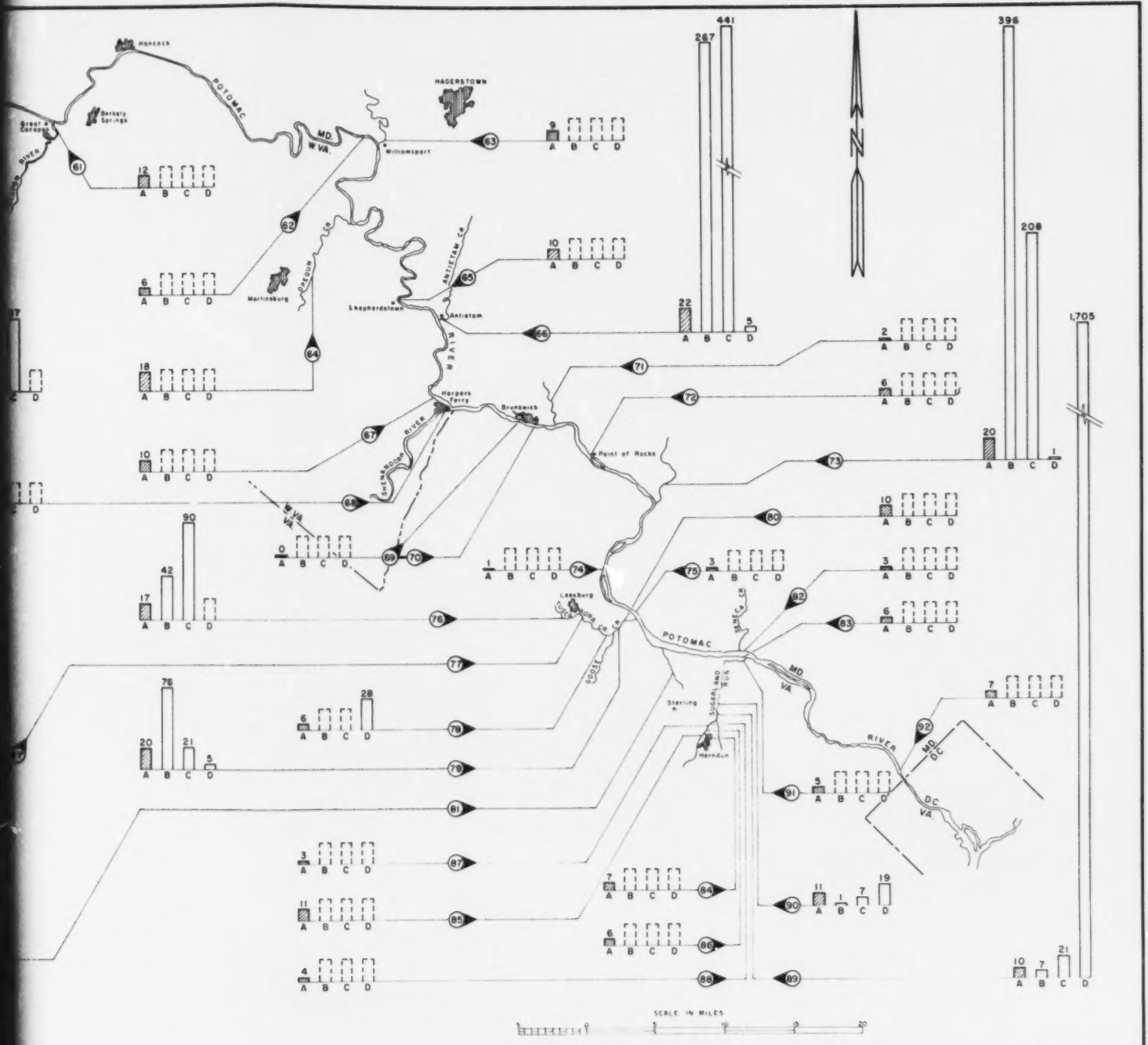
BIOLOGICAL SURVEY

UPPER POTOMAC RIVER & SELECTED TRIBUTARIES

U.S. DEPARTMENT OF THE INTERIOR
FEDERAL WATER POLLUTION CONTROL ADMINISTRATION
MIDDLE ATLANTIC REGION CHARLOTTESVILLE, VA.

FIGURE 1


POTOMAC
RIVER
SOUTH BRANCH
POTOMAC
RIVER
MD
W VA
Hancock
Romney
Moorefield
Petersburg
Green Spring
Paw Paw
Tearcoat Creek
Martinsburg
Shepherdstown
LEGEND:
STATION NUMBER
QUANTITATIVE SAMPLE TAKEN AND NO OF ORGANISMS FOUND PER SQ FT
QUANTITATIVE SAMPLE NOT TAKEN
QUALITATIVE SAMPLE TAKEN AND No. OF KINDS (GENERA) OF ORGANISMS FOUND
BOTTOM ORGANISMS.
B CLEAN WATER ORG SQ FT SAMPLE
C INTERMEDIATE ORG SQ FT SAMPLE
D POLLUTION TOLERA IN SQ FT SAMPLE
A TOTAL No OF KINDS A, B, & C



BOTTOM ORGANISMS.

B CLEAN WATER ORGANISMS FOUND IN SQ FT SAMPLE

C INTERMEDIATE ORGANISMS FOUND IN SQ FT SAMPLE

D POLLUTION TOLERANT ORGANISMS FOUND IN SQ FT SAMPLE

A TOTAL No OF KINDS, INCLUDING TYPES A, B, & C

SAMPLE TAKEN AND NO FOUND PER SQ FT

SAMPLE NOT TAKEN

SAMPLE TAKEN AND No. OF OF ORGANISMS FOUND

POTOMAC RIVER BASIN
CHESAPEAKE DRAINAGE AREA
BIOLOGICAL SURVEY
UPPER POTOMAC RIVER & SELECTED TRIBUTARIES

U.S. DEPARTMENT OF THE INTERIOR
FEDERAL WATER POLLUTION CONTROL ADMINISTRATION
MIDDLE ATLANTIC REGION CHARLOTTESVILLE, VA.

FIGURE 1-A